11:15

CHRONIC DETERIORATION IN LEFT VENTRICULAR FUNCTION IN PATIENTS WITH MICROVASCULAR ANGINA

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Although patients with chest pain despite normal coronary arteriograms are believed to have a benign prognosis, some patients with abnormal coronary flow reserve and EKG conduction abnormalities have been reported to show deterioration in LV systolic function over time. In order to assess serial changes in LV function in patients with abnormal coronary flow reserve (microvascular angina), 61 patients underwent repeated radionuclide angiograms to assess resting LV ejection fraction (EF) and wall motion abnormalities (WMA). Follow-up periods ranged from 2 to 9 years (mean 4.7 years). All patients had been treated with calcium channel blockers, but all studies were performed off medications. Patients were subgrouped by the initial EKG response to exercise: normal (NL) -39 patients; ischemic EKG (ST↓) -15 patients; bundle branch block (BBB) -7 patients. Data=mean±SD. *=p<.01 vs initial LVEF. F/U=Follow-up.

	Initial LVEF	F/U LVEF	>10 EF% Decline	New WMA
NL	52±8%	51±9%	7/39	8/39
ST↓	58±10%	56±7%	0/15	0/15
BBB	53±5%	44±8%*	3/7	2/7

Overall, 10 patients demonstrated a >10% decline in LVEF, and 10 patients developed new wall motion abnormalities (5 did both). Three patients underwent LV endocardial biopsy; histologic sections showed myofibrillar loss and vacuolization, patchy myocellular hypertrophy, fibrosis and small artery medial hypertrophy. Thus, impaired regional and global LV function may develop over time in a large subset of patients with microvascular angina, including patients without BBB or ST↓ EKG responses to exercise.

11:45

SIMPLE BEDSIDE APPLICATION OF VALSALVA MANEUVER ACCURATELY DETECTS ELEVATED LEFT VENTRICULAR FILLING PRESSURES IN PATIENTS WITH NORMAL OR DEPRESSED EJECTION FRACTION

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To determine the usefulness of Valsalva Maneuver (VM) in correctly identifying patients with an elevated left ventricular filling pressure (LVFP), 38 pts undergoing cardiac catheterization were studied. After an initial validation using intra-arterial pressure monitoring in 15 patients, arterial pressure response to a standardized VM was detected at the bedside using a sphygmomanometer (SM). Arterial systolic pressure was first measured with a SM and while the cuff was left inflated at the level of systolic pressure, the patients were asked to perform a 10 second VM. Disappearance of Korotkoff sounds during the strain phase indicated a fall in arterial pressure during the VM (Normal Response) whereas the persistence of Korotkoff sounds indicated lack of fall in systolic pressure (abnormal Response). Results are as follows: (Data=Mean±SD).

	LVFP (mmHg) PCW	LVedp	% LVEF
Normal Response (N=11)	8.8±2.9	10.9±2.1	68±7
Abnormal Response (N=12)	24.5±7.8*	22.9±4.9*	60±15#

*p<0.001 compared to Normal Response Group # p=NS;
PCW= Pulmonary capillary wedge pressure; LVEF=left ventricular ejection fraction.
Conclusion: An abnormal response correctly identified patients with an LVFP ≥15 mmHg with a sensitivity of 100% and specificity of 91% regardless of a normal or depressed LVEF. Thus a simple beside application of VM accurately detects clinically relevant elevations of LVFP irrespective of LVEF.

Monday, March 4, 1991
10:30AM–12:00NOON, Room 202, East Concourse
Redistribution and Reinjection of Thallium 201

10:30

SCINTIGRAPHIC AND ECHOCARDIOGRAPHIC FEATURES OF PERSISTENT DEFECTS: IMPLICATIONS FOR VIABILITY

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Defects which persist (PERS) on 24 hour Tl-201 imaging (SPECT) may show partial redistribution (PART RED) or, if fixed, may vary in count density. To investigate the importance of this variability, we blindly graded echocardiograms (ECHO) and SPECT done within 3 months of each other in 41 patients with stable angina using a 16 segment model. Fixed defects were graded as follows: mild (FX MLD), moderate (FX MOD), or severe (FX SEV). ECHO wall motion (WM) was graded as normal (N), hypokinetic (HYPO) or akinetic/dyskinetic (AK/DYS). Thinned segments (Tn), in relation to adjacent myocardium, were tabulated.
In segments with adequate ECHO, PERS occurred in 23/258 (9%) with NWM, 96/213 (45%) with HYPO, and 47/61 (77%) with AK/DYS. Results in 166 PERS, with the number of Tn in (), are:

	SPECT			
ECHO	PART RED	FX MLD	FX MOD	FX SEV
NWM	17(0)	4(0)	1(0)	1(0)
HYPO	20(6)	9(1)	25(4)	42(19)
AK/DYS	9(6)	1(1)	6(5)	31(24)

Wall motion (p=.0001) and the number of thinned segments (p=.0002) varied significantly among the PERS subgroups. NWM occurred in 2% of all FX SEV and FX MOD compared to 35% of all PART RED and FX MLD. Among FX SEV, 42% were AK/DYS and 58% were Tn compared to 17% and 25%, respectively, of other groups. However, exceptions occurred: 58% of FX SEV had residual function, (NWM or HYPO), and 42% had preserved wall thickness.
CONCLUSION: Although function and morphology of segments with PERS generally worsens in parallel to the severity of the defect, there are a number of exceptions. Therefore, combined assessment of perfusion, function and morphology by SPECT and ECHO may isolate potentially viable segments, and identify patients who would benefit most from further metabolic studies such as positron imaging.

11:45

EARLY REDISTRIBUTION OF THALLIUM FOLLOWING RAPID REVERSAL OF DIPYRIDAMOLE INDUCED CORONARY VASODILATION

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To determine if the rapid reversal of dipyridamole (D) induced coronary vasodilation would affect the redistribution kinetics of Tl-201, we studied 36 pts who were to undergo coronary angiography with D-Tl-201 imaging. All pts were infused Aminophylline (A) 6 mg/kg upon completion of the initial images; intermediate images were obtained immediately after and delayed images 3 h later. Each view was divided into 3 segments representing the 3 major coronary artery vascular territories and analyzed as to whether they showed normal perfusion (nl), or abnormal with partial (p), complete (c) or no redistribution (f). The sensitivity and specificity for detecting CAD were 96% and 86% respectively. Results of perfusion and redistribution analysis for the intermediate and delayed images follow:

	intermediate	delayed
nl	204	204
f	48	51
c	48	50
p	25	20

Of 5 discordant segments, 3 appeared fixed in the delayed images and showed partial redistribution in the intermediate. Two defects showing partial redistribution in the intermediate images filled in to normal in the delayed images. We conclude that the degree of Thallium redistribution observed following administration of A immediately after the initial images during D-Tl testing is comparable to that observed at 3 h delayed images. As such, intermediate post A imaging may be used instead of 3 h delayed images during D-Tl testing without loss of sensitivity or specificity.